

REMARKS/ARGUMENTS

Initially, the Applicants would like to thank Examiners Leung and Tran for the courteous interview extended their representatives on November 19, 2003. In general, all the claims currently pending in the application, i.e., claims 31 and 35-40 were discussed with respect to the rejection thereof based on Eliasson (JP 07-149670) in view of Takahashi (U.S. Patent No. 5,746,985). In general, it was discussed that the present invention is directed to the storage of electrical energy, in particular to systems and methods for storing electrical energy in the form chemical bonds. The present application goes into detail discussing that the rate of generation of electricity does not always readily match demand. For instance, if electrical energy is generated using solar energy, maximum electrical generation occurs on warm, sunny days. Even with conventional power stations which feed electricity into a national grid, electricity demand is much higher during the day than during the night. To this end, the present invention is concerned with storing the electrical energy that is not utilized during non-peak times. More particularly, the present invention is directed to systems and methods for storing electrical energy in the form of chemical bonds and, even more particularly, chemical bonds formed by the reaction of hydrogen and carbon dioxide.

Initially, it was drawn to the attention of the Examiners that the applied prior art is not at all concerned with the storing of energy produced during non-peak times in a manner analogous to that of the present invention. More specifically, the main reference to Eliasson is concerned with the large scale introduction of carbon dioxide into the atmosphere at fossil fuel combustion facilities, such as the kind having enormous smoke stacks. That is, instead of allowing carbon dioxide emitted from a plant or other industrial facility to simply be discharged directly to the atmosphere, the carbon dioxide is processed with hydrogen to produce methanol. In accordance with Eliasson, the methanol can be utilized for other purposes. The Examiner is correct in indicating that

Eliasson mentions the methanol can be utilized in a vehicle. To this end, the Examiner has modified the Eliasson arrangement by Takahashi which discloses a vehicle that runs on methanol. Therefore, presumably, the methanol would be arranged in containers at the plant of Eliasson and shipped to a location where it could be mounted in a car of Takahashi and used in connection with propelling a vehicle through a fuel cell as disclosed in accordance with Takahashi.

Even assuming that the combination of references as set forth above was obvious to one of ordinary skill in the art, it is respectfully submitted that independent claim 31, as well many of the other dependent claims in this application, still patentably distinguish the invention from the known prior art. In particular, independent claim 31 specifically requires means for recycling carbon dioxide produced by a second reactor to a first reactor. In the combination set forth by the Examiner, any carbon dioxide produced in accordance with Takahashi, presumably in hydrogen-separating apparatus 14, would have to be individually bottled or the like for each vehicle employing the methanol and then these bottles brought back to the plant of Eliasson, specifically to the first reactor, in order to meet the limitations of claim 31. It is respectfully submitted that the bottling of carbon dioxide in individual vehicles and returning them to a specified reactor in a plant that bottles methanol is not disclosed or suggested in the prior art, nor is it considered feasible. Fuel cell vehicles are extremely low in any type of omissions such that the amount of carbon dioxide omitted from any individual vehicle would be quite small such that an enormous number of miniature containers, presumably attached to individual exhaust flows from vehicles, would have to be collected and returned to the plant of Eliasson. It is simply, respectfully submitted that one of ordinary skill in the art would not consider employing such as an arrangement in connection with the known prior art, either taken singly or in combination. Regardless, this combination still does not address the concerns of the present invention of storing energy during non-peak energy time periods.

In the outstanding Office Action, the Examiner referenced the fact that Eliasson teaches to further process carbon dioxide omitted from the fossil fuel burning plant for a teaching to recycle emitted carbon dioxide. However, it should be recognized that the carbon dioxide from the plant in Eliasson is not actually recycled, but rather is processed further downstream with additional structure in the form of the various reactors. To this end, there is actually no recycling at all involved in connection with either Eliasson or Takahashi.

In addition to this major distinction in connection with independent claim 31, it is considered that many of the other dependent claims in this application present further distinctions. For instance, claims 36-38 and 40 set forth specific structure to which the contained methanol is delivered. In the combination set forth by the Examiner, the Takahashi reference employs a fuel cell analogous to that set forth in claim 37. However, claim 38 specifies that the second reactor is a steam reformer and claim 40 specifies that the second reactor is an internal combustion engine. Perhaps Takahashi could be modified to employ an internal combustion engine, however, it is respectfully submitted that the vehicle of Takahashi would not employ a steam reformer. Finally, in connection with the present invention as set forth in claim 39, the carbon dioxide sent back from the second reactor to the first reactor has interposed therebetween an additional storage unit. This structure is also not seen to be disclosed or suggested in the applied prior art.

As indicated above, the Applicant's representatives presented arguments according to those set forth above during the personal interview conducted with the Examiners in this application on November 19, 2003. Although no specific agreement was reached during the interview, it certainly appeared that the Examiners recognized the distinctions between the present invention and the applied prior art and would favorably reconsider the application, pending an updated search on this subject matter. In any case, if the Examiners should have any additional concerns regarding the allowance of this

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Request for Reconsideration

application, they are cordially invited to contact the undersigned at the number provided below if it would further expedite the prosecution.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Everett G. Diederiks, Jr.", written over a horizontal line.

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